

REMARKS

Claims 1-2, 4-29 and 33 are pending in this application. The specification has been objected to, due to the language and length of the abstract. A new abstract is submitted herewith and is provided on a separate sheet of paper.

Claims 1-2, 4-29 and 33 have been rejected under 35 USC 112, second paragraph. All pending claims have been amended, in accordance with the issues raised by the Examiner in paragraph 5 of the pending action. Further, although those skilled in the art readily understand the term "FRP" to refer to fiber reinforced plastic; and the term "CFRP" to refer to carbon fiber reinforced plastic, all claims have been amended, in order to expedite prosecution of this application, to replace the terms "FRP" and "CFRP" with fiber reinforced plastic and carbon reinforced plastic, respectively. Support for this amendment is found throughout the specification as filed and, specifically, on page 13. Claim 1 has been further amended to require that the rib, which is interposed between and joins the two FRP sheets, is integrally molded to the sheets by a resin transfer molding process. This feature of the invention is not shown or suggested by any cited reference. The resin transfer molding process is described in the paragraph bridging pages 21 and 22 of the specification. Thus, no new matter has been added by these amendments. In view of applicants' amendment of the claims, the rejections under 35 USC 112, second paragraph, is moot and should be withdrawn.

Claims 1-7, 10-15, 19, 22-24, 29, and 33 have been rejected under 35 USC 102(b) as being anticipated by De Zen. This rejection has been obviated by applicants amendment of claim 1. Claim 1, as amended, includes a reinforcing fiber of either carbon fiber, a hybrid of glass and carbon fiber, or both. Nowhere does De Zen, however, disclose the use of carbon fiber or glass/carbon fiber hybrids. In the Office Action, the Examiner states that De Zen discloses

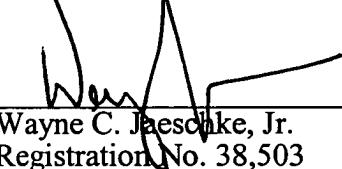
glass fiber/carbon fiber hybrids at col. 10, lines 31-36. This is incorrect. A thorough review of this reference has not revealed any disclosure by De Zen of the use of carbon fiber in FRP roofing materials. Further, De Zen does not teach, disclose or suggest a rib interposed between the pair of sheets, which is integrally molded to the sheets by a resin transfer molding process, as required by amended claim 1. The rejection under 35 USC 102(b), therefore, should be withdrawn.

Claims 8, 9, and 25 have been rejected under 35 USC 103(a) over De Zen in view of Lopez-Anido. Claims 16-18, 20, and 21 have been rejected under 35 USC 103(a) over De Zen alone, and claims 26-28 have been rejected under 35 USC 103(a) over De Zen in view of Ishikawa. For the reasons set forth above, a *prima facie* case of obviousness cannot be supported by any combination of these references, since De Zen does not disclose carbon fiber or carbon fiber/glass fiber hybrids for use in FRP roofing materials. Moreover, none of the references teaches integrally molding the interposed rib, to join the pair of CFRP or CFRP/GFRP hybrid sheets, by a resin transfer molding process, as required by amended claim 1. Since no combination of cited references teaches or suggests every element of applicants' claims, all rejections under 35 USC 103(a) must be withdrawn.

All claims are in condition for allowance and a notice thereof is solicited.

In the event that the transmittal letter is separated from this document and the Patent and Trademark Office determines that an extension and/or other relief is required, applicant petitions for any required relief including extensions of time and authorizes the Assistant Commissioner to charge the cost of such petitions and/or other fees due in connection with the filing of this document to **Deposit Account No. 03-1952** referencing docket no. **360842007000**. However, the Assistant Commissioner is not authorized to charge the cost of the issue fee to the Deposit Account.

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VERSION WITH MARKINGS SHOWING CHANGES MADE

Please cancel claim 3 without prejudice or disclaimer.

1. [FRP] A fibre reinforced plastic roofing material comprising a sandwich structure where a pair of sheets comprising [FRP] fibre reinforced plastic is arranged with a gap between them and a rib structure which is integrally molded by a resin transfer molding process to [joins said] the pair of sheets is interposed, wherein the fibre reinforced plastic includes a reinforcing fibre that is selected from the group consisting of a carbon fibre, a glass fibre and carbon fibre hybrid, and combinations thereof.
2. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where [the respective thicknesses of said] the pair of sheets [is] have a thickness of from 2-10 mm.
4. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where [the thickness of] the rib [is] has a thickness of from 1-3 mm.
5. [FRP] A fibre reinforced plastic roofing material according to Claim [3] 1 where [there is used for] the reinforcing fibre of the [FRP] fibre reinforced plastic [rib] comprises a multiaxial woven material [comprising] having a fibre direction at an angle of 45 ± 10° to the lengthwise direction of the rib structure.
6. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where the [FRP] fibre reinforced plastic is [CRP] carbon fibre reinforced plastic.
7. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where the [FRP] fibre reinforced plastic is a hybrid [FRP] fibre reinforced plastic of carbon fibre and glass fibre.

8. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where [the form of] the reinforcing fibre is [that of] a woven material.

9. [FRP] A fibre reinforced plastic roofing material according to Claim 8 where the [carbon fibre] woven material is a plain weave or twill weave.

10. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where [the spacing of] the gap [is substantially] provides a uniform spacing along the lengthwise direction of the sheets.

11. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where the [spacing of the] gap provides a spacing that varies along the lengthwise direction of the sheets.

12. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where there is arranged, in the gap, a filler [of] having a specific gravity lower than [that] the specific gravity of [both] the pair of sheets.

13. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where at least one of the sheets has a jagged form in which there are alternatively arranged peaks and troughs.

14. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where a rigid frame [(Rahmen)] structure is arranged in the gap.

15. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where a connecting member for connecting to another member is fitted to [the] an outer face of at least one of the sheets.

16. [FRP] A fibre reinforced plastic roofing material according to Claim 1 [where the] having a ratio of [the overall thickness of] the sandwich structure's overall thickness to [the thickness of] each of the [sheet] sheet's thickness [comprising said pair of sheets lies] in the

range 5:1 to 25:1 and, furthermore, the [weight of] sandwich structure has a density that is no more than 100 kg/m².

17. [FRP] A fibre reinforced plastic roofing material according to Claim 1 [where the] having a flexural rigidity [per unit width] of the sandwich structure that is at least 5 x 10⁷ [kg.mm²] kg/mm².

18. [FRP] A fibre reinforced plastic roofing material according to Claim [18] 1 which extends in [the] a lengthwise direction at [substantially] a uniform width, and [the flexural rigidity per unit width (1 mm)] the fibre reinforced plastic roofing material has a flexural rigidity in the lengthwise direction [is] of at least 5 x 10⁷ [kg.mm²] kg/mm².

19. [FRP] A fibre reinforced plastic roofing material according to Claim 1 [where the] having a cross-sectional shape that is selected from the group consisting of flat sheet shaped, V-shaped, hat shaped, W-shaped, inverted Y-shaped, corrugated [or] , and circular arc shaped.

20. [FRP] A fibre reinforced plastic roofing material according to Claim 1 which extends in [the] a lengthwise direction at [substantially] a uniform width, and where its dimensions are a length of 10-25 m and a width of 1.5-3.5 m.

21. [FRP] A fibre reinforced plastic roofing material according to Claim 20 [where the] having a shape in the lengthwise direction [is that of] that is a circular arc.

22. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where a plurality of the [FRP] fibre reinforced plastic roofing materials [is] are connected together in [the] a widthwise direction.

23. [FRP] A fibre reinforced plastic roofing material according to Claim 22 where a gap is formed between adjacent [FRP] fibre reinforced plastic roofing materials in the widthwise direction [connection].

24. [FRP] A fibre reinforced plastic roofing material according to Claim 23 where the connection region is covered with a waterproof member.

25. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where [the matrix resin of] at least one of the sheets [chiefly] comprises a matrix resin comprising phenolic resin.

26. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where a fire-resistant material is provided at least on one face of the fibre reinforced plastic roofing material.

27. [FRP] A fibre reinforced plastic roofing material according to Claim 26 where the fire-resistant material is a fire-resistant material containing rock wool.

28. [FRP] A fibre reinforced plastic roofing material according to Claim 26 where the fire-resistant material is a fire-resistant material containing phenolic foam.

29. [FRP] A fibre reinforced plastic roofing material according to Claim 17 [where the thickness of the FRP] having a fibre reinforced plastic layer comprising carbon fibre that is at least 5% [that] of the [FRP] fibre reinforced plastic [sheet] sheet's total thickness.

33. [FRP] A fibre reinforced plastic roofing material according to Claim 1 where there is a core material in the gap and there are present, in the core material, through-holes running from [the] an upper face to [the] a lower face.